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09/881.697	06/18/2001	Hiroshi Iizuka	P100158-00034	8595

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EXAMINER
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MAKI, STEVEN D

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 07/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/881,697	Applicant(s) IIZUKA ET AL.	
	Examiner Steven D. Maki	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1) A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6-25-04 has been entered.

2) Claims 1 and 3-5 are objected to because of the following informalities:

In claim 1 line 15, "being" should be --is--.

In claim 1 line 17, "being" should be --is--.

Appropriate correction is required.

3) The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Appropriate incorporation of "a space between said thin rib and said first groove wall being larger than a space between said thin rib and said second groove wall" into the specification.

4) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5) Claims 4 and 6-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

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one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 4, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the subject matter of the narrow groove portion having a generally uniform width. The original disclosure shows a narrow groove portion as being defined between parallel walls wherein one of the walls is the outwardly inclined wall of the thin rib 9 and the other wall is the outwardly inclined wall W2 of the main groove. The parallel walls cause the narrow groove portion to have constant width in the depth direction instead of a "generally uniform width". The description of "generally uniform width" has no explicit basis in the original disclosure and it is not seen how the illustrated narrow groove portion having parallel walls supports the subject matter of "generally uniform width".

In claim 6, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the subject matter of the side wall portion contacting the tread portion. Although the original disclosure describes a tread portion 1 and a sidewall portion 2, the original disclosure fails to teach "contacting" the rubber composition of the tread portion and the rubber composition of the sidewall portion.

In claim 6, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at

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the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the subject matter of at least one interior main groove being located at the center of the said tread portion. Figure 1 shows one rib 8 at the tread center (i.e. the equatorial plane) instead of one groove, two grooves, etc.

In claim 6, the subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention (i.e. the new matter) is the omission of the thin rib being near the shoulder. The original disclosure teaches locating the thin rib in a groove having outwardly inclined walls near the shoulder instead of the near the center. Furthermore, the original disclosure does not show how a thin rib can be located near a center while at the same time maintaining the limitation of "a space between said thin rib and said first groove wall being larger than a space between said thin rib and said second groove wall"; it being emphasized that the only support for the quoted limitation is figures 1-3 which require the thin rib to be located near the shoulder.

6) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7) Claims 4-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, the scope and meaning of "generally uniform width" is unclear, it being noted that the original disclosure provides no guidance as to the meets and bounds of a width which is "generally uniform".

In claim 6, it is unclear what subject matter is required by the sidewall portion "contacting" the tread portion. Does the description of "contacting" in claim 6 exclude a wing rubber between the tread portion and the sidewall portion?

In claim 11, it is unclear if only one bead portion is being claimed. The description of "bead cores" indicates that two bead cores are being claimed. In claim 11, it is suggested to change "a bead portion" to --bead portions--.

As to claims 16, 17 and 18, it is unclear what additional limitation is required by each of these claims.

In claim 18, with respect to what does the second groove wall incline?

8) Claims 16, 17 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 16 and 17 (each dependent on claim 6) fail to further limit claim 6 because the limitations of claims 16 and 17 are inherently required by claim 6. The subject matter in claim 6 of "said first and second groove walls ... incline outward in the tire width direction from said tread surface toward the bottom of said at least one exterior main groove" requires one of the walls to be greater than 90 degrees and the other of the walls to be inclined less than 90 degrees.

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Claim 18 (dependent on claim 6) fails to further limit claim 6 since the subject matter in claim 6 of "said first and second groove walls ... incline outward in the tire width direction from said tread surface" requires the second groove wall to incline toward the shoulder since the expression "outward in the tire width direction" is defined with reference to the tire shoulder.

9) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Mamada et al

11) **Claims 6-8, 11-12 and 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mamada et al (US 4836257).**

Mamada et al discloses a pneumatic radial tire having a tire size such as LSR 750 R16 14PR for a heavy load vehicles. Since the tire is a pneumatic radial tire, it has a carcass, bead portions and bead cores. The tire comprises a tread having a "narrow

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groove" 20, "generally U-shaped groove" 10 wherein the narrow groove 20 is inclined outward from the tread surface to a groove bottom. The claimed groove reads on the combination of the groove 20, the groove 10 and the rib therebetween wherein groove 20 has a width such as 2 mm and groove 10 has a width larger than that of groove 20. The claimed "thin rib" reads on the rib between groove 20 and groove 10. See figure 2. It is noted that Mamada et al's rib between grooves 10 and 20 is "thinner" than the rib between grooves 10 and 10. It is acknowledged that Mamada et al's rib between grooves 10 and 20 has a height equal to the tread surface. However, new claim 6 clearly reads on a thin rib have a height equal to the tread surface. See new dependent claim 12, which recites "a height of said thin rib is made equal to said tread surface".

**12) Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mamada et al in view of Kukimoto et al (US 5445201).**

As to claim 10, it would have been an obvious to one of ordinary skill in the art to form Mamada et al's main grooves as straight main grooves since Kukimoto et al, also directed to prevent wear in a heavy duty pneumatic tire, teaches using either straight or zigzag main grooves in such a tire.

**13) Claims 1, 3-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mamada et al in view of the admitted prior art (specification page 1 lines 9-25, page 2 lines 1-4, page 9 lines 2-6).**

As to claim 9, it would have been obvious to provide Mamada's grooves in the pneumatic tire such that they widen after inflation since the admitted prior art teaches that known pneumatic tire construction causes the grooves to widen after inflation. The



motivation to use Mamada et al's teachings with grooves that widen is to improve wandering performance of a tire having grooves which widen after inflation. As to claims 1, 3 and 4, the limitation of the rib being symmetrical would have been obvious in view of Mamada's teaching to define a trapezoidally shaped rib between grooves 10 and 20 using oppositely inclined sidewalls.

**14) Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mamada et al in view of the admitted prior art as applied above and further in view of Kukimoto et al.**

Claim 5 is rejected for the same reasons given above for claim 10.

Japan '413

**15) Claims 6-8, 11-12 and 14-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japan '413 (JP 7-117413).**

Japan '413, directed to reducing uneven wear, discloses a heavy duty pneumatic tire comprising four main grooves 3. Each main groove 3 is arranged between a pair of narrow grooves 6A, 6B. The narrow grooves have a width (e.g. 2 mm) less than the width of the main grooves. See figures and paragraph 10 of the machine translation. In figure 1, the narrow grooves have a straight configuration. More specifically, the narrow grooves have parallel and straight walls which are perpendicular to the tread surface. Japan '413 teaches that the narrow grooves may have different configurations other than the straight configuration shown in figure 1. In figure 3, Japan '413 shows different configurations for the narrow grooves. In configuration D, each narrow groove has one

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groove wall inclined inwardly from the tread surface to a curved bottom and the other wall inclined outwardly from the tread surface toward the curved bottom.

Claims 6-8, 11-12 and 14-18 are anticipated by Japan '413's tire in which the narrow grooves have the configuration D. One of ordinary skill in the art would readily understand that each of the five ribs may have the configuration D. In any event: It would have been an obvious alternative to form the narrow grooves in the figure 1 tire of Japan '413 such that all of the narrow grooves have the configuration D since (1) Japan '413 teaches using the same cross section for all of the narrow grooves and (2) Japan '413 suggests using a configuration D for the narrow grooves as an alternative to a straight line configuration.

The claimed groove reads on *the combination of a shoulder main groove 3 and narrow groove 6B in the shoulder rib 5B.*

The claimed first wall reads on *the axially inner groove wall of the shoulder main groove 3.*

The claimed second wall reads on *the axially outer wall of the narrow groove 6B in the shoulder rib 5C.*

The claimed thin rib reads on *the rib formed between the shoulder main groove 3 and the narrow groove 6B in shoulder rib 5B.*

It is acknowledged that the "thin rib" formed between the main groove 3 and the narrow groove 6 extends to the tread surface (the height difference between the top of the "thin rib" and the tread surface is = 0). However, new claim 6 clearly reads on a thin rib having a height equal to the tread surface. See new dependent claim 12, which recites

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"a height of said thin rib is made equal to said tread surface". Claim 6 fails to exclude forming a narrow groove in a second rib 5B. With respect to claim 11, the tire also has a pair of bead cores each being located in a bead portion since the tire is a pneumatic tire having a carcass 9 and a belt 10. In any event: it would have been obvious to provide Japan '413's tire with a carcass, bead portions and bead cores as claimed since (1) Japan '413's tire is a pneumatic tire having a carcass 9 and (2) it is taken as well known / conventional per se in the tire art to provide such a tire with bead portions and bead cores so that the tire may be mounted on a rim.

**16) Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '413 in view of the admitted prior art (specification page 1 lines 9-25, page 2 lines 1-4, page 9 lines 2-6).**

Japan '413 is silent as to the grooves being wider after inflation.

The admitted prior art discloses a pneumatic tire having a ribbed tire having grooves whose width is widened during inflation wherein both groove walls are inclined at 80 degrees with respect to the tread surface. The admitted prior art appears to teach that uneven wear occurs with this tire.

As to claim 9, it would have been obvious to one of ordinary skill in the art to apply Japan '413's solution for uneven wear to a tire having grooves which widen after inflation since (1) Japan '413 suggests applying the disclosed narrow grooves 6 to a ribbed tire to prevent uneven wear and (2) the admitted prior art teaches using main grooves which widen after inflation in a tire and indicates uneven wear occurs with such a known tire.

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**17) Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '413 in view of Kukimoto et al (US 5445201).**

As to claim 10, it would have been an obvious to one of ordinary skill in the art to form Japan '413's main grooves as straight main grooves since Kukimoto et al, also directed to prevent wear in a heavy duty pneumatic tire, teaches using either straight or zigzag main grooves in such a tire.

As to claim 13, it would have been obvious to one of ordinary skill in the art to lower the thin rib between the main groove 3 and narrow groove 6 such that the height difference is less than 4 mm since Kukimoto et al suggests lowering the height of a thin rib between a main groove and a narrow groove to form a stepped zone defining a height difference of for example 2 mm to further improve uneven wear.

admitted prior art

**18) Claims 1, 3-11 and 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (specification page 1 lines 9-25, page 2 lines 1-4, page 9 lines 2-6) in view Kukimoto et al (US 5445201) and Kabe et al (US 5345988) and optionally Montagne (US 3763911).**

The admitted prior art discloses a pneumatic tire having a ribbed tire having grooves whose width is widened during inflation wherein both groove walls are inclined at 80 degrees with respect to the tread surface. The admitted prior art appears to teach that uneven wear occurs with this tire. A thin rib is not provided in the main groove. However, it would have been obvious to one of ordinary skill in the art to provide the grooves of the admitted prior art with a generally U-shaped main groove portion, a thin

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rib and a narrow groove portion since Kukimoto et al suggests using such a main groove configuration (see figures 19a, 19b) so that the tire has excellent uneven wear resistance. Furthermore, it would have been obvious to outwardly incline the narrow groove 4' so that the thin rib 3 is symmetrical and has a generally trapezoidal shape as claimed in view of (1) Kabe et al's teaching to incline a narrow groove adjacent a thin rib for preventing wear so that the thin rib is provided with a trapezoidal shape to prevent the thin rib from being chipped off and optionally (2) Montagne's teaching to outwardly incline a narrow groove adjacent to a symmetrically shaped thin rib to prevent wear. With respect to "symmetrical", it is noted that angle theta2 and angle alpha2 in Kabe et al may each be 10 degrees (see column 6) and that the thin rib in Montagne, which may be provided on one or both sides of the groove (col. 2 lines 59-61), is illustrated as being symmetrical. No unexpected results of uneven wear resistance over Kukimoto et al have been shown. As to the limitation of a single thin rib, both Kukimoto et al and Kabe et al teach using a single thin rib for preventing wear with a circumferential main groove in a heavy load /duty tire for trucks or buses. See col. 1 lines 10-15 and figure 19b of Kukimoto et al and col. 1 lines 5-10 and figure 2 of Kabe et al. The use of a single thin rib is consistent with Montagne's teaching that a protruding element (thin rib) may be provided on one side and not the other (col. 2 lines 59-62). With respect to the shape of the thin rib, Kabe et al recommends inclining the walls of narrow groove such that the thin rib has a trapezoidal shape to prevent the thin rib from being chipped off. See Kabe et al at col. 5 lines 2-12 and col. 8 lines 2-3. It is acknowledged that the trapezoidally shaped thin rib for preventing wear in Kabe et al is located on a center

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side instead of a shoulder side of the circumferential main groove. However, one of ordinary skill in the art, faced with the problem of preventing wear, is apprised from Kukimoto et al that the solution of a thin rib for preventing wear may be located at the shoulder side of the main groove (figure 19b) as an alternative to being located at the center side (figure 20b). One of ordinary skill in the art therefore would have been motivated from the applied prior art to use a thin rib at the shoulder side of the main groove and to form such a thin rib with a trapezoidal shape to improve uneven wear resistance (Kukimoto et al, Kabe et al) and to prevent chipping off of the thin rib (Kabe et al).

As to claim 3, the limitation of the height difference being 0-4 mm would have been obvious and could have been determined without undue experimentation in view of Kukimoto et al's teaching to locate the top of the protrusion (stepped zone) slightly below the tread surface so that the protrusion (which may define a height difference of 2 mm) contacts the road so as to serve as an uneven wear sacrificed portion.

As to claim 4, the claimed width of 4 mm or smaller for the thin groove portion would have been obvious in view of Kukimoto et al's teaching that groove 4' is a narrow cut.

As to claims 6-9, 13-18, the main groove portion in Kukimoto et al defines a larger space than that defined by the narrow groove portion.

As to claims 5 and 10, the limitation of the main groove being straight would have been obvious in view of Kukimoto et al's teaching that the circumferential groove for the figure 19a, 19b embodiment is straight.

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As to claim 11, Kukimoto et al's tire has the claimed tire construction. In any event: it would have been obvious to provide Kukimoto's tire with a carcass, bead portions and bead cores as claimed since (1) Kukimoto's tire's tire is a pneumatic tire having a carcass 5 and (2) it is taken as well known / conventional per se in the tire art to provide such a tire with bead portions and bead cores so that the tire may be mounted on a rim.

## Remarks

19) Applicant's arguments with respect to claims 1 and 3-18 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 6-25-04 have been fully considered but they are not persuasive.

Applicant argues that the groove walls in Kabe et al are inclined inward. More properly, Kabe et al teaches a trapezoidally shaped **thin rib for reducing wear** in a *heavy duty tire* and Kukimoto et al teaches locating a **thin rib for reducing wear** in a *heavy duty tire* on either the outer side or the inner side.

Applicant's argument that grooves 18, 19 of Montagne fail to include a narrow groove portion is not persuasive since (1) Kukimoto et al teaches that the thin rib may be used in *all* of the grooves and (2) Montagne's teachings are not limited to only using the figure 2 cross section in grooves 16 and 17.

20) No claim is allowed.

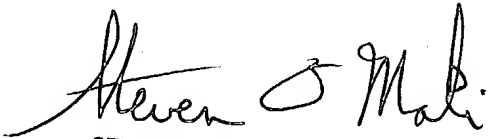
21) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is (571) 272-1221. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven D. Maki  
July 27, 2004

  
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PRIMARY EXAMINER  
~~GROUP 1300~~  
Av 1733  
7-27-04